Independent Final Report

Title: Customer Relationship Management in Retailing Industry: A Case Study on Convenience Store Sector in Japan.

by

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Certification Page

I, AHMED faysal (Student ID 52114611) hereby declare that the contents of this Independent Final Report are original and true, and have not been submitted at any other university or educational institution for the award of degree or diploma.
All the information derived from other published or unpublished sources has been cited and acknowledged appropriately.

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Summary

Due to globalization, organizations need to change their strategies continuously to maintain pace with the greatest challenges faced by the continuous change in the market environment. In this competitive market place, a firm can differentiate itself by providing unique product or services. An organization can build a sustainable approach to defeat their competitor in a highly competitive environment. Customer is the main element for sustainable business growth. It is an important issue to understand how to manage relationship with customers. This research focused on the customer relationship management of Convenience store sector in Japan. Convenience store sector is the fast growing retailing sector in Japan. Competition is very high in Japanese retailing industry. This research focused on the factors that most influence customer satisfaction through service quality provided by the convenience stores. For doing so, this research has collected relevant information from literatures about CRM in retailing industry and also collected data through a survey conducted in Beppu city area on the assumption that customer consumption pattern are similar all over Japan. Statistical analysis tool has been used to analyze data collected through survey. Statistical analysis shows that CRM components such as store loyalty, responsiveness are most influencing factors of customer satisfaction.

1. Introduction:

Customer relationship management is an integrated approach to know its customer, process and technology by focusing customer retention and relationship development. CRM has evolved because of dramatic increase of product and service availability. Organizations that can successfully implement CRM will be able to earn higher customer retention and long-term profitability (Chen & Popvich, 2003). Globalization has changed the concept of mass production and marketing strategy and increased the product availability. As there is an abundant of product availability, customer can buy product from wherever they find suitable for them. This is also true for the case of seller side in some sorts. Customers become just a number. Organizations are trying to construct their relationship to potential and existing customers to gain customer loyalty. By using technology and strategic management some organizations are creating and increasing their market share over their competitor. To understand the best management practice, executives should consider the four business dimensions: brand, management, operations and equity (R. Guati, 2000).

Customer relationship management is considered as a broad term in today's business world. Different professional defines it in a different way. A marketing executive can

see CRM as a strategic tool to achieve organizations target. A chief information manager may see CRM as a medium to establish & retain relationship with organizations and customers (Zubey, 2007) . Customer relationship management is very essential for an organization. Proper and efficient customer relationships provide long term relation with organization and customers and act as one of the driving force of profitability for the organization. Growing effectiveness of CRM leads firms to emphasize and analyze the relationships among concerned parties. Previously it may considered as a tool for leading firms or organizations but now a days, sometimes customer relationship management is a surviving tool for an organization.

Organizations need to understand what are critical factors that keeps them top than their competitors. CRM helps organizations to understand the components customers need and the components that can pull the organization over its competitor. Organizations are competing with each other by lowering price, advertising or increasing promotions. Organizations must understand the market condition. Organizations should have a strong focus on their customer and potential customers. They should build a structure of how to increase customer relationships that will provide a strong foundation for the organization (Zineldin, 2006). Due to globalization companies are competing with each

other's to increase market share and to become dominant in the market. For doing so, organizations should consider to improve CRM (Chu, 2007). But maintaining customer loyalty for a long term is not an easy task for an organization. CRM is not only a fact that is considered while doing the business but also the fact of retaining the customers and the profitability of an organization largely depends on the longevity of customer loyalty (Chan, 2010).

Organizations are realizing the fact that they should move from brand or product centric marketing to customer centric approach. Many of the organization believe that CRM implication is very expensive and sometimes inefficient. Some of organization consider it as an investment on Technology other organizations consider it as a management tool to improve customer satisfaction to achieve organization's goal (Werner Reinartz, Aug., 2004). Academicians are tried to show relationships among customer satisfaction and company performance. But there are very few researches on how a particular component of CRM relates with customer satisfaction and the factors that an organization should implement to improve market share. This research will focus on the factors that affect customer satisfaction particularly in convenience store sector in Japan and will try to find what kind of measure organizations can take to improve CRM

towards profitability.

The retail sector especially convenience store sector needs to investigate service quality, customer loyalty, price, location, employee attitude and other factors to identify the factors that influence customer satisfaction to increase profitability and maximize revenue for this sector.

1.1. Problem Identification:

Retail industry is now in a period of transformation. Besides traditional retailing entities such as department stores, supermarkets and convenience stores, new retailing entities such as mega shopping mall are emerging in Japan. Competition among these retailing companies is severe (Times, 2014).They are selling almost same kind of products. Despite of the aggressive competition, Convenience stores sales volume remains same and department and supermarket's sales dropped substantially (Japan Ministry of Economy, 2015).Due to this highly competitive market, retailers are taking strategic management practices to increase market share and dominance. Retailers are looking forward to increase their customer. So, exploratory research should be done on retailing industry to identify the factors influencing organization's performance. Some

researchers found that customer relationship management has positive effect on organization's performance (Gerstner, 2002) (Jayasankaraprasad & Kumar, December, 2012) (Kumar G. R., 2008). Unfortunately most of the research focuses only few components of customer relationship management. In these circumstances, this study will try to combine factors that can have influence on customer relationship management. For the simplicity and due to time constraints, this research will only consider "Convenience store sector as a retailing industry in Japan" as a case study.

1.2. Research question:

This research will focus to find out CRM factors that can influence customer satisfaction of convenience store sector in Japan. This study will consider only customer side satisfaction not on organization side. This research will analyze customer satisfaction factors that customers receive from convenience stores and identify factors that can be improved by the organization's side to enhance customer satisfaction. Research question of this research is:

> What are the most influencing factors that affect customer satisfaction particularly in the convenience store sector in Japan?

2. Literature Review:

2.1. Customer relationship management:

Once Organization's thought was to create loyal customer. The thought behind this fact was that, organization may make same level or better profitability in case of product variation or price change. But due to globalization, customer behavior has changed or does not work all the time. Some customers always ask and hunt for the best price. This kind of customers is not profitable for the organization. A part CRM helps organization to identify profitable customer groups and then to formulate business strategy to maximize profitability (Kumar & Reinartz, 2012). Researchers have found that consumer behavior greatly influence on marketing practice and advertisement by the organization. Some of the researcher mentions that there is a strong relation between advertising and materialism (Graham, 2010). An effective CRM should consider the organization's environments. This should include all the value chain part within an organization. Organization will examine the whole value chain and implement the CRM strategy and this strategy will focus intensively at the most weakest part of a value chain, then it will be an effective customer relationship management strategy (Baran, 2008). On the other hand, one group of researcher has found that managerial support and work

affiliation has indirect effects on customer satisfaction by improving employee satisfaction (Yuanqiong He, Septermber, 2011)

(Chan, 2010), pointed out that CRM is a different strategic approach than traditional marketing strategy as it focuses one-to-one marketing activity and it helps to identify effective customer group that are loyal and profitable for the organization. But there are some controversies about the implication of CRM. (Bryan, 2002), pointed out that CRM should not related with sales. Writer's opinion is, organization paid bonus or other form of reward to the sales person for their sales person but this sale may be for short term and organization should consider on long-term profitability, because this customer drain will not be consider as a problem for sales department but will consider as a customer relation problem for the organization (Bryan, 2002).

2.2. Relationship among parameters:

Several researches have been done to identify relationship among factors that influence customer satisfaction and customer relationship management. In this research I will

focus on some selected journal articles and books those explain how these variables interact with each other. The interaction will be considered to form the dynamic model to further analyze. (J, London, Crom, & Jones, 1996), explains that organization performance and customer satisfaction are related with employee attitudes. Employee attitudes can be improved over time and experience. Customer satisfaction is a performance indicator in service business along with measures of unit productivity and administrative effectiveness. Author of this article has shown that a small change in employee attitudes leads to a significant impact on performance. So if an organization put money to improve its employee management then the organization can be benefited by higher performance. John et al. (1994) from Massachusetts Institute of Technology mentioned that many American corporations consider customer satisfaction as employee motivation system as if employees know that he or she is able to satisfy their customer than the employee feel satisfied psychologically. Writers focus on the reward system to increase employee performance, although organizations cannot always measure employee efficiency about how efficient they are in terms of customer satisfaction (John R. Hauser, 1994). (Robinson, 1978), argued that customer satisfaction measurement tool should be ideal, low cost and provide accuracy. Their opinion is, “the acquisition of customer feedback should be anonymous, easy and simple”.

Organizations must understand the customer value and take appropriate measure to combine organization's responsibility and effectiveness measures to form customer value. Employee's view about management collaboration and company strategy influence the performance of the company and customer satisfaction. Managers of an organization should play as a linkage between the organization and the employees and encourage them to act accordingly. (J, London, Crom, & Jones, 1996). Organization should create successive interactions to achieve profitable customer relationship (Kumar G. R., 2008).Under the competitive market condition organizations must concentrate on customer centric. Now-a-days companies spent a lot of resources to measure customer satisfaction. (Zeitaml, 1996), this study showed interrelationship between customer satisfaction, store loyalty and service quality in departmental store sector. This article hypothesized three consequences such as; 1. Service quality has a positive effect on satisfaction, 2. Recommendation and service quality has positively connected factors, 3. Customer satisfaction has positive connection with store or brand loyalty. (Zeitaml, 1996)Explained that satisfied customers put the company over other company by referencing or recommending to others, ready to pay higher price, create a bond with the company and eventually increase the sales volume of the company.

Traditionally managers focused on customer satisfaction and service quality. It is quite

difficult for the managers to manage and identify loyal customer because the customer can have positive affection with other rivalry shops at the same time. By fostering of a favorable attitude stores can retain and create customers. But the same is true for the competing stores. By providing quality service than other competitors, a store can create favorable attitude to create customer satisfaction. (Sivada, 2000) Mentioned that service quality and satisfaction can create favorable attitude on customers to recommend the store to others that can boost revenue, customer retention and customer loyalty. (J. Joseph Cronin, 1992) Also mention that service quality should be measured as an attitude. Definition of communication in this research will not only consider as a formal communication between service provider and customer but also will consider as communication lack due to language barriers. The logic behind the fact is that there are millions of foreigners live in Japan. Many of them cannot read and write in Japanese. So, the difficulty customers face during purchase is to read the product level and find out a specific product. In this situation, survey will focus on the customer's shopping experience in terms of communication barrier.

(Cynthia & S, 2009)This study focused on the communication of service provider and

customer satisfaction. Researchers did an systematic analysis on professional service provider to focus on the communication style of different service criteria and found that service provider's communication style largely influence customer satisfaction. According to the author, Communications can be characterized by high and low affiliation. Low dominance is important in low critical situation and vice versa. Low dominance is important in experience services as because service providers are too experienced about their service. On the other hand, high dominance is necessary in credible services. Managers should train his/her employees how to adopt criticalness and the nature of the service the organization provide. Researcher of this study found that provider's communication was largely related with the evaluations of the service, such as if the provider's service is satisfying, customer feels that the service was more satisfying. Author suggested that communication style is very important in low-critical situations because where customer likely to visit service provider routinely.

In another article, author mentioned that the front line service provider provides organization-customer interface and they are mainly represents an organization to customers. (Liao & Chuang, A Multilevel investigation of Factors Influencing Employee service Perfromance and customer outcomes, 2004), here author shows that

high quality service generates high customer satisfaction but the relationship between overall customer evaluation and service quality is not always true. For example, a restaurant's architecture that is beyond the control of individual employees. In one article, (Taylor & Baker, 1994) showed that service quality and customer satisfaction model differs largely depends on the types of industry and the customer they are dealing with. An empirical study had been conducted by (Jayasankaraprasad & Kumar, December, 2012) on the factors that influence customer satisfaction in retail store sector. This study considered product price, waiting time, store loyalty, repurchase intention, Word-of-mouth activity, and complain behavior, service quality, store reputation and store location as variables to measure customer satisfaction. The result shows that store should pay attention on merchandise value proposition such as merchandise value, store promotions, value added services that will initiate word-of-mouth marketing and also increase store loyalty. Besides this, store decoration (atmosphere), fast check-out line, personal rapport and dialogue with customers have positive impact on customer satisfaction (Jayasankaraprasad & Kumar, December, 2012).

(Gerstner, 2002)Argues that product audit can be a useful tool to measure and services against market situation and price sensitivity. This can help organizations to create

product benchmarking, price analysis, and market expansion policy and profitability measurement. There are some authors who argue that there are two CRM issues that most of the literature neglected, one is advertisement and promotion of human capital. (Homburg, Apr. 2007), is one of them who emphasized that empowering human capital can improve customer satisfaction and an important factor for firm's profitability. John R. et.al (1994), proposed that firm can implement certain practices for improving CRM such as firm can use customers reaction to monitor employees how they allocate their effort to satisfy the customers. (John R. Hauser, 1994)mentioned that this kind of approach can be used to motivate employees to make tradeoffs that are the best interest of the firm.

2.2. Convenience Stores Sector in Japan:

2.2.1. Definition of Convenience stores:

The reason behind the use of the term 'convenience' is that customer found these kind of small retailing shops are very convenient for their daily life. Basically convenience

stores operate 24 hours a day and offer groceries, snack foods, toiletries, drinks, newspaper & magazine. (Wikipedia)

2.2.2. Convenience stores in Japan:

In Japan Convenience stores are commonly known as 'Konbini' (コンビニ) (Wikipedia)。Convenience stores started its operation in Japan in 1969. According to (Koki, Dec. 2001) Japanese convenience stores largely depend on 'Point of Sales (POS)' system. This system helps stores to manage sales, keep customer information, amount of products sold and also for the supplier to know the required amount of products to be filled. According to (Russell, Jan-Mar 2000), convenience store became very popular in Japan because of its convenience. In general convenience stores offers the below services:

- Courier and Postal service.
- Photocopying and fax service.
- Automated teller machines.

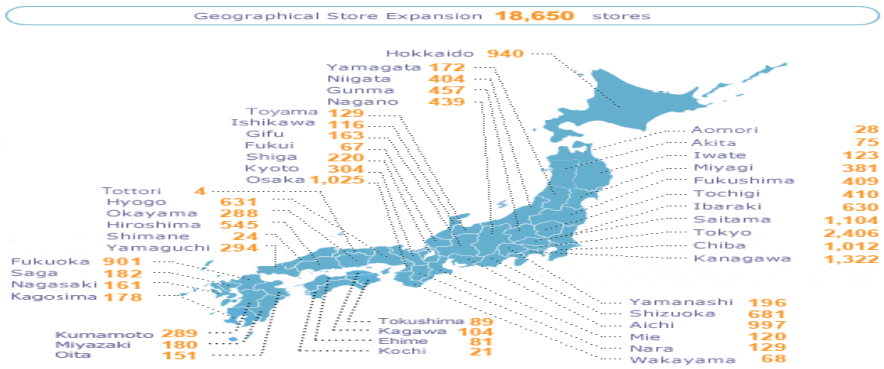
- Utilities bill payments.
- Ticket for various cultural events and parks.
- Cellular phone cards are also available. (Wikipedia).

2.2.3. Leading convenience stores in Japan:

Top five convenience store chains in Japan are Seven-Eleven Japan, Lawson, Family Mart, Circles K Sunkus and Ministop and they accumulate 91% of total industry (Review, 2014).

Seven-Eleven Japan:

Seven eleven japan is number one among convenience store chain in Japan in terms of number of stores; it has 18650 stores and total sales4,291,067 million yen in Japan as of April 30, 2016 (Co.Ltd, 2016). The following figure shows countrywide presence of Seven-Eleven Japan.



Source: (Co.Ltd, 2016)

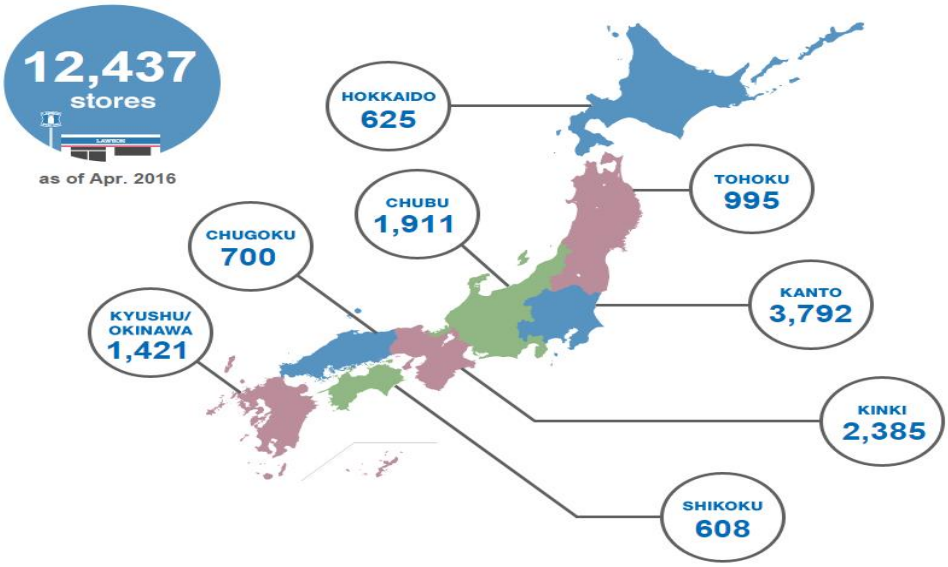
Figure 1: Seven-Eleven stores in Japan.

Family Mart:

Family Mart is in second position in terms of stores and top in terms of sales. It has 17502 stores in Japan and net-sales 2,005,580 millions of yen as of February, 2016 (Mart, 2016).

Lawson:

Lawson is the third largest convenience store chain in Japan of having 12437 stores around Japan and net sales 1,945 billion yen as of February 2014 (Lawson, 2014). Below picture shows Lawson's presence in each prefecture.



Source: (Lawson, 2014)

Figure 2: Lawson stores in Japan.

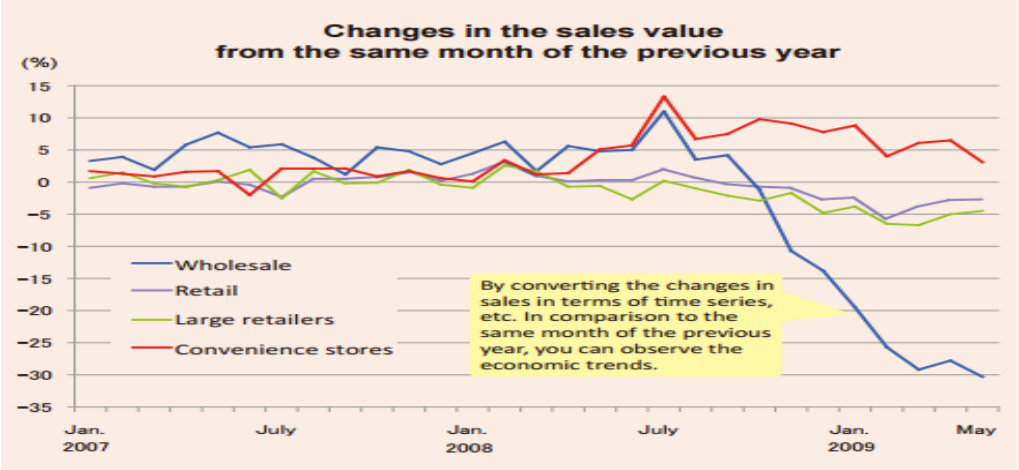
2.2.4. Statistical Data about Convenience Store in Japan:

(The below financial data has been collected from Japan Ministry of Economic, Trade and Industry (METI).)

In the 4th quarter of 2000 there were 35461 convenience stores in Japan and total revenue was 1703123 million yen. In 4th quarter of 2015, 54505 convenience stores accumulated sales were 2819227 million yen. Revenue increased by 165.5% in 15 years. On the other hand (Department stores + Supermarket) sales as of 4th quarter 2000was 6321039million yen and in 4th quarter of 2015 sales were 5348713 million yen, 84%

sales drop in 15 years.

The below graph shows the stable growth of convenience store sector over other retailing sectors such as Wholesale, retail and large retailers.



Source: (Japan Ministry of Economy, 2015)

Figure 3: Retail market.

2.3. Factor Analysis:

Factor analysis is a combination of different statistical techniques whose purpose is to identify a group of variables in terms of smaller number of hypothetical variables. Let's assume that we have interviewed one hundred students about their interest of reading. We asked them what kind of books they like to read, how many hours they read, and so

on. The responses to these questions are called observed variables. Generally, the first step of analysis is to examine the interrelationship among the variables. If we prepare a correlation matrix table, we may see that there are positive relationships among these observed variables and the relationships within some subsets are stronger than those between the subsets. A factor analysis then can be used to justify whether this correlation can be explained by the existence of a small number of hypothetical variables.

Sometimes, it is difficult to estimates about the numbers of underlying dimensions of a given data. In this situation, factor analysis can be used as an *exploratory* technique to identify the minimum number of hypothetical factors that can account for the observed co variation and a form of possible data reduction. But, factor analysis is not only use for exploring underlying dimension but also use to test specific hypotheses. We may hypothesized that there are two different underlying dimensions in a given data set and one certain variable belong to one dimension while others belong to the second. If we use factor analysis it means that the analysis will justify the hypotheses and it is called *confirmatory* factor analysis. The division between the two uses is always not clear. For example we may say that there will be two underlying factors but cannot specify which

variables will represent what factor (Jae-On Kim, Introduction to Factor Analysis: What it is and how to do it, 2013).

2.3.1. Factors and variables:

"Factor analysis is based on the fundamental assumption that some underlying factors, which are smaller in number than the number of observed variables, are responsible for the covariation among the observed variables." (Jae-On Kim, Introduction to Factor Analysis: What it is and how to do it, 2013). Below graphs and equations are derived from the book name, "Introduction to Factor Analysis ((Jae-On Kim, Introduction to Factor Analysis: What it is and how to do it, 2013)((Jae-On Kim, Factor Analysis: Statistical Methods and Practical Issues, 2014)". Now, let's assume a simplest case, where one underlying factor is responsible for the covariance between two observed variables.

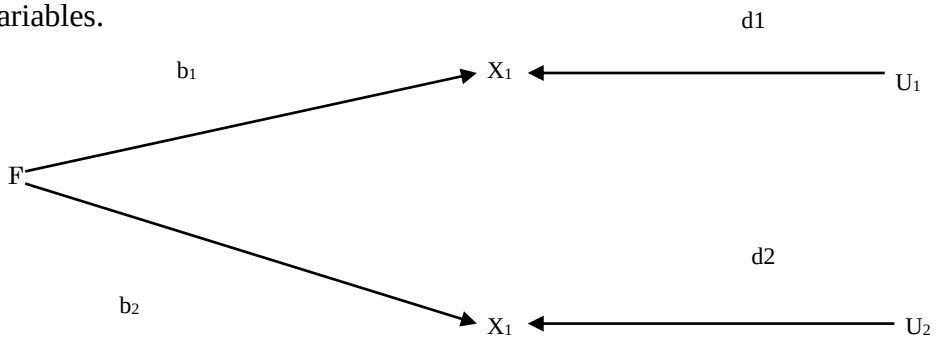


Figure 4: Path model for a two variable, one common factor model

According to the above diagram, F is a common factor for both X_1 and X_2 and in the same way U_1 and U_2 are unique variables to each other. X_1 is the weighted sum of F and U_1, X_2 is the weighted sum of F and U_2. So, in algebraic form,

$$X_1 = b_1F + d_1U_1$$

$$X_2 = b_2F + d_2U_2$$

According to the diagram, there is no covariance between F and U_1, between F and U_2 and between U_1 and U_2, so the equation can be rewrite as,

$$COV (F, U_1) = COV (F, U_2) = COV (9U_1, U_2) = 0.$$

The above three equations together represents factor analytic linear system.

Now, if we consider a situation where for a given data set, for instance, there is one common factor and many observed variables is simple and straightforward the below diagram will be the extension of the previous Fig 2.

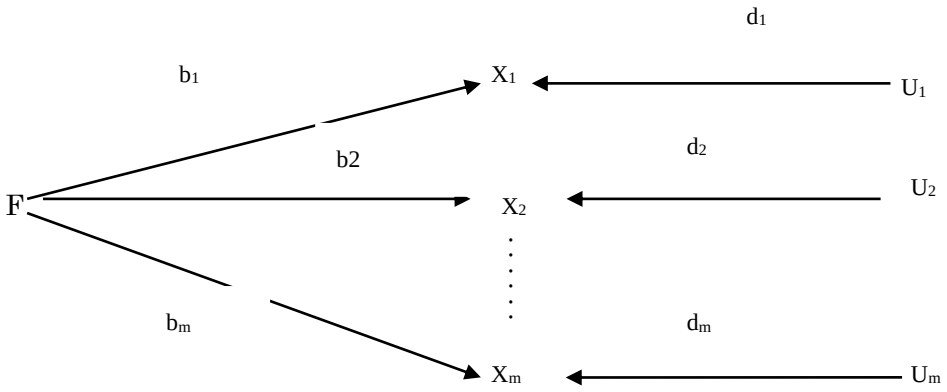


Figure 5 Path model for a Multi-variable, one common factor model

According to the above diagram, COV (F, U1) = 0, and COV (U_i, U_j) =0, then the linear equation will be,

$$X_1 = b_1F + d_1U_1$$

$$X_2 = b_2F + d_2U_2$$

……

$$X_m = b_mF + d_mU_m.$$

Therefore, for a given (m+1) number of variables we can identify b_1, b_2,….bm, as factor loadings and b_1^2, b_2^2,….b_m^2, as respective communalities. The correlations between the factors and variables are also equivalent to b_1,b_2,……bm, on an assumption that var(F) = var(U_i) =1 and cov(F, U_i) and cov(U_i, U_j) = 0.

The resulting correlations between observed variables are:

$r_{12} = b_1b_2$, $r_{13} = b_1b_3$,…….$r_{1m} = b_1b_m$ and so on.

Two common factors (Orthogonal Case): From the above discussion, we have seen that one common factor analysis is quite simple and explains few about basic properties of

factor analysis. Let's assume a situation where the covariance in the observed variables is accounted for by two common factors which are uncorrelated with each other. Besides this we have several source variables that are also uncorrelated with each other. If we are asked to create five variables by combining these source variables by the condition that two of these source variables may be used for the creation of every new variable and one unique source variable should be used for each created variable (Xi).

The above diagram implies the following assumptions and rules of linear combinations:

Assumptions: cov (F1, F2) = cov (Fi,Uj) = cov(Uj,Uk) = 0.

Linear Combinations:

$$X_1 = b_{11}F_1 + b_{12}F_2 + d_1U_1$$

$$X_2 = b_{21}F_1 + b_{22}F_2 + d_2U_2$$

$$X_3 = b_{31}F_1 + b_{32}F_2 + d_3U_3$$

$$X_4 = b_{41}F_1 + b_{42}F_2 + d_4U_4$$

$$X_5 = b_{51}F_1 + b_{52}F_2 + d_5U_5$$

Here F1 and F2 are common factors as they share several variables and U1…..U2 are unique factors. When the linear weight associated with the two common factors, they

form a rectangular form called factor pattern matrix or factor structure matrix (Jae-On Kim, Introduction to Factor Analysis: What it is and how to do it, 2013).The correlation (r_{FjXi}) between a common factor (F_j) and a variable (X_i) is equivalent to the linear weight (b_{ij}) is derived from the previous equations.

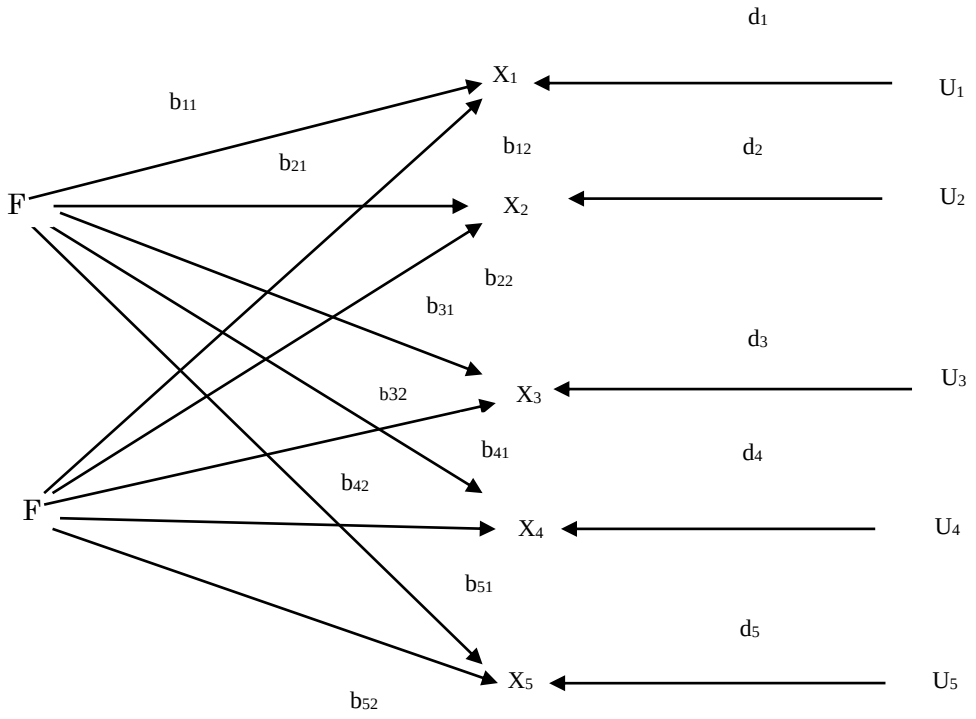


Figure 6: Path model Five - variable, two common factor model (Orthogonal Case)

The decomposition of the variance of X_i is given by:

$$\text{var}(X_i) = b_{i1}^2 + b_{i2}^2 + b_i^2$$

The communality of variable i(hi^2) is the proportion of variance of an observed variable (X_i) can be expressed as:

$$h_i^2 = b_{i1}^2 + b_{i2}^2$$

And, the covariance among any two observed variables is:

$$r_{ik} = b_{i1}b_{k1} + b_{i2}b_{k2}$$

2.3.2. Strategy and methods of factor analysis (*exploratory analysis)*:

The use of factor analysis mainly based on exploratory or confirmatory depending on the objective of the research. Both two methods contains three basic steps; preparation of covariance matrix, extracting initial factors and rotating to a terminal solution. In the initial factoring process there are two models; one is common factor model and principal component analysis where the underlying rationale is different from the common factor analysis. Both the models are widely used and effective. Basic difference between the two analyses is principal components are certain mathematical functions of observed variables and the common factor analysis is not expressible by the combination of observed variables (Jae-On Kim, Factor Analysis: Statistical Methods

and Practical Issues, 2014). The main objective of exploratory analysis is to identify minimum number of common factors that can produce correlation among the observed variables. If there is no sampling and measurement error then there is an exact correspondence between the minimum numbers of common factors responsible for a given correlation matrix.

2.3.3. Orthogonal rotation:

Factoring process initially identifies few amounts of factors that can be judge for the observed correlations. The next step is the rotation techniques through which simple and more easily interpretable factors can be identified. There are three basic techniques for rotation. The first one is to examine the pattern of variables graphically and then rotate the axis or define new axis that best describe the one's expectations. When variables are well separated from each other than the simple structure can be achieved but if the variables are not adequately separated from each other or not properly cluster then this graphical technique is not appropriate to use.

The second approach is to rely on analytic rotation method that is free of subjective judgment. There are two different subtypes in this process; one is orthogonal rotation

and another is oblique rotation. Many variations are observed with each type of rotations. The third one is to define a target matrix before rotation. The main target of this kind of rotation is to find the factor pattern that are closest to the given target matrix.

One of the systems to calculate numerical measure of simplicity is the variability of squared factor loading for each row (Jae-On Kim, Factor Analysis: Statistical Methods and Practical Issues, 2014). Because variance is the average of the squad deviations from the mean and its value becomes greatest when one component of the squared loadings equal to the communality while the rest of the values remain zero. Therefore the factorial simplicity can be written as:

Factorial Complexity of a Variable i$= 1/r \sum_{j=1}^{r} ({b_{ij}}^2 - {b_{ij}}^{-2})^2$.....[1]

Where r is the number of column in the pattern matrix, b_{ij} is the factor loading of variable i on the factor j, and b_{ij}^2 is the mean of squared loading for the row. Equation can be written as:

$$q_i = \frac{\sum_{j=1}^{r} (b_{ij})^4 - (\sum_{j=1}^{r} {b_{ij}}^{2})^2}{r^2} \quad \text{.....[2]}$$

As the initial factor solution is given, both r and communalities of each variable are fixed. So, the term after minus sign is fixed because in an orthogonal solution.

$$\sum_{j=1}^{r} {b_{ij}}^2 = {h_i}^2$$

Then the overall simplicity can be obtained by summing $q_i$forall the variables:

$$q = \sum_{i=1}^{n} qi = \sum_{i=1}^{n} \frac{\sum_{j=1}^{r}({b_{ij}}^4) - (\sum_{j=1}^{r} {b_{ij}}^2)^2}{r^2} \quad \text{.....[4]}$$

If we maximize the value of q that means maximization of the following terms,

$$Q = \sum_{i=1}^{n} \sum_{j=1}^{r} {b_{ij}}^4 \quad \text{.....[5]}$$

This is because, the rest of the term of the equation [4] are constant. Interpretation of variable becomes simple when few numbers of common factors involved in it. On the other hand, interpretation of a factor becomes simpler when small number of variables have high loading on the factors.

In case of varimax rotation, it maximizes the variance of the squared loadings for each factor instead of maximizing variance of squared loadings of each variable. The simplicity of a factor j is then:

$$v_j = \frac{n\sum_{i=1}^{n} {b_{ij}}^4 - (\sum_{i=1}^{n} {b_{ij}}^2)^2}{n^2} \quad \text{.....[6]}$$

We can see that the sum is of n variables and that the term after the minus sign does not remain same as it was in case of equation number [2].

$$(\sum_{j=i}^{n} {b_{ij}}^2)$$

So, the overall measure of simplicity is:

$$V = \sum_{j=1}^{r} v_j = \frac{\sum_{j=1}^{r} n \sum_{i=1}^{n} {b_{ij}}^4 - \left(\sum_{i=1}^{n} {b_{ij}}^2\right)^2}{n^2} \quad \ldots\ldots\ldots\

applied and inserted in main diagonal. But it is not logical to extract all factors with eigenvalue greater than zero, because there may be many negative eigenvalues.

3. Methodology:

To answer the question, the demand side of the study, the research conducted a survey to assess the customer's feedback through questionnaire. The research data collection based on the assumption that the consumption behavior and customer satisfaction indicators across Japan are more or less similar, taking it in to account the cultural, consumption pattern, language and buying habit similar in the population. Data for the research has been collected from a specific area called Beppu city area on the basis of the above assumption.

3.1. Data collection and preparation:

Basically there are two types of data, Primary data and secondary data. For this research I choose primary data for clear and deep understanding. In this research target population is the people who has purchasing power and has ability to evaluate services they get from convenience stores. For this research, I chose to apply non-probability sampling technique to collect data based on personal judgment and convenience.

The first step in factor analysis is collecting relevant data for analysis. These basic data then arrange in a systematic way, called a data matrix. The data matrix has two modes, the entity mode represents cases or objects, the left side column of the table and the other mode is variable modes represented by different column. I am going to do exploratory factor analysis. One of the basic benefit to use exploratory analysis is there are many existing programs that accept the covariance matrix as basic input data.

The second major step in factor analysis is to identify factors that can explain correlations among the observed variables. To do so, I need to input the matrix into a computer program to get the initial solution. There are many computer programs available to run the test. Some of them are; a) maximum likelihood method; b) least-squares method; c) Alpha factoring; d) Image factoring; e) principal components analysis. I am going to use the principal component analysis because this one contains special features such as KMO and Bartlett's Test, Extraction Sums of Squared Loadings, Varimax rotation and so on. The main concern is whether the smaller number of factors can identify covariance among from a large number of variables.

3.2. Sample size and statistical power:

For the survey, I distributed 100 survey questionnaires. 68 persons responded to the survey. That means 68 customers replied about their convenience store's shopping experience. I am confident that the sample is adequately representing of the population. Survey respondents were asked to reply about their convenience store shopping experience. Survey asked respondents about their shopping experience so that I can create a pattern of behavior.

The survey questionnaire contained customer satisfaction related questions. Most of the questions used 5 points Likert scales. A Likert scale assumes that the intensity of experience is linear. Likert scale is based on an assumption that attitude can be measured (McLeod, 2008). SPSS, statistical data processing software has been used to analyze the data. This software needs numerical value to analyze the information. So, a 5-pointlikert scale was designed where 1 represent strongly disagree, 2represent disagree, 3 represent neither agree nor disagree, 4 represent agree and 5 represent strongly agree. 1 coded as Female and 2 coded as male. Age group "less than 18" coded as 1, age group "18-25" coded as 2, age group "26-32" coded as 3, age group "33-40" coded as 4 and age group "above 40" coded as 5. The questionnaire items and the

descriptive data are given in the Appendix.

Study participants did not receive any incentives for their participation in the survey.

3.3. Survey Findings:

Among the 68 respondents, 38 respondents were male and 29 respondents were female that is 43% of total sample.

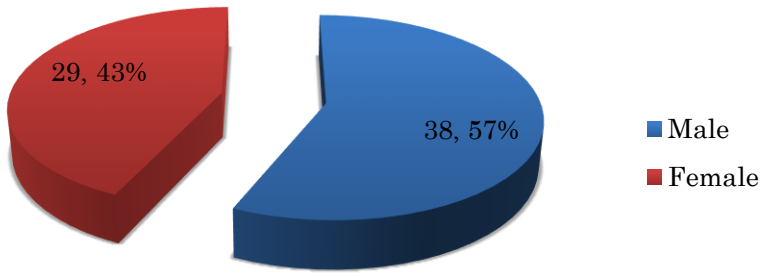


Figure 7: Gender

Respondent's age were divided into five categories. Among them, 37% of respondents were from age group "26-32". The second largest age group was "33-40" contributes 34 % of the total respondent.

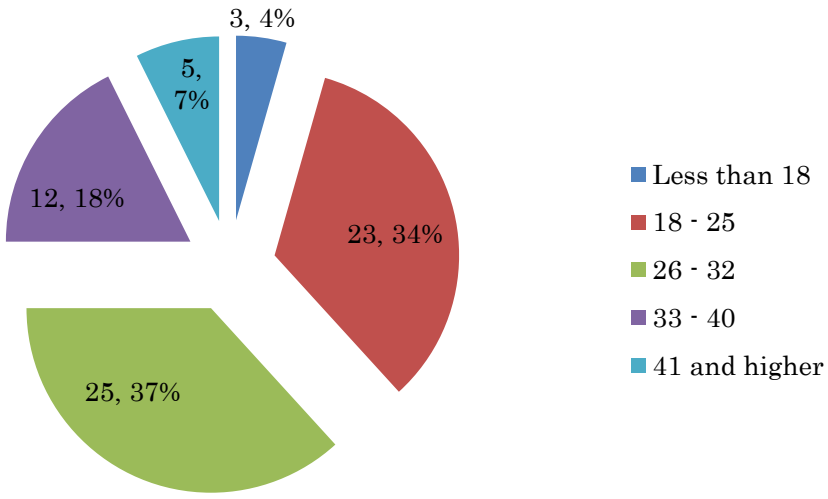


Figure 8: Age group of respondents

52 % of the respondents said that they are very satisfied about the location of the convenience stores. 36.8% respondents reply that they are satisfied about the same, so the overall satisfaction about stores location is around 90%.

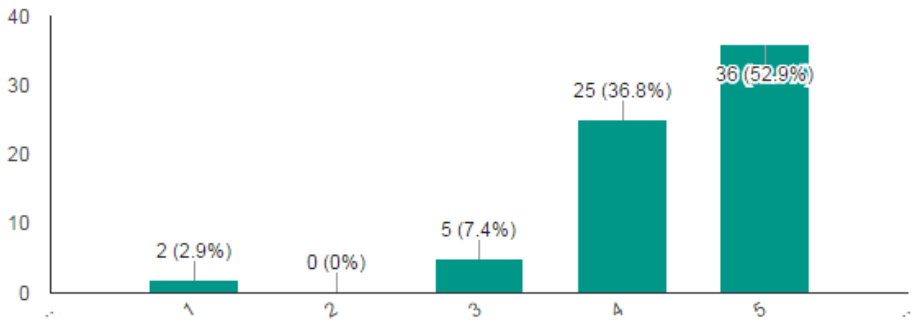


Figure 9: Location

45.6% of the survey respondents replied that they are satisfied with convenience store's decoration and atmosphere. But in this same topic we can see that 26.5% of the respondents marked neutral that may indicate that these respondents might not noticed about the decoration of the stores or it might not as appealing as compare to superstore or mega stores.

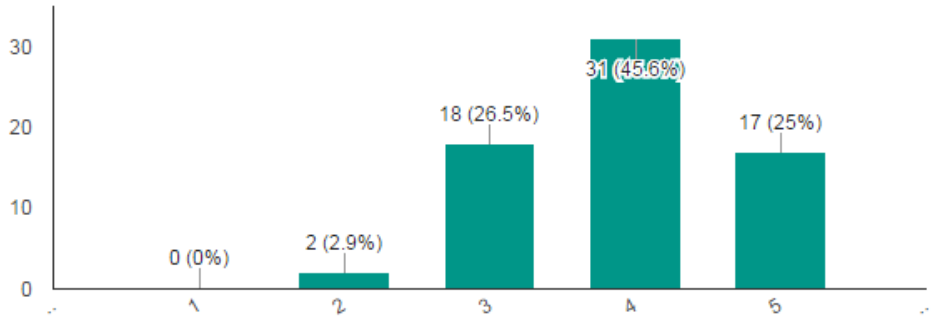


Figure 10: Store atmosphere

Responses about Check-out time show that over 70% of the respondents marked that they were satisfied about check out time but here also a moderate number of respondents remain silent or neutral.

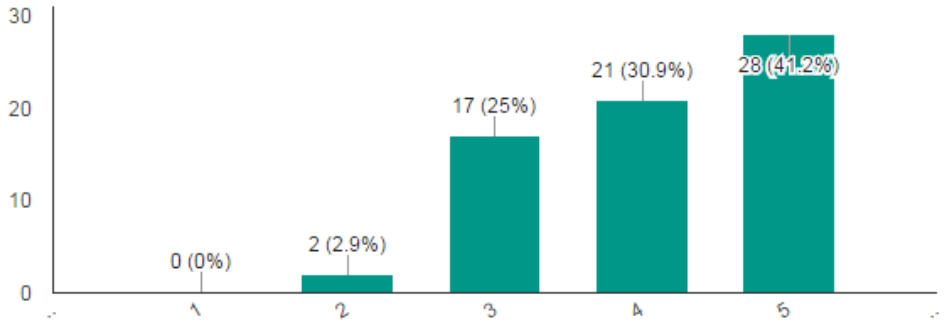


Figure 11: Check-out-time

Significant number of respondents mentioned that they are satisfied about the responsiveness of the convenience store's staffs. 37.3 % among the total respondents said they are very satisfied about the staff's responsiveness.

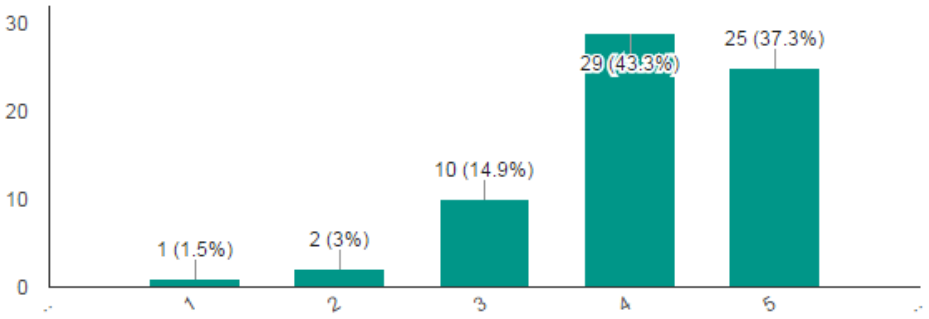


Figure 12: Employee responsiveness

A significant number of respondents said that they use convenience store because it is available for 7 days in a week and 24 hours a day and 64.7% respondents marked that they are very satisfied for its availability.

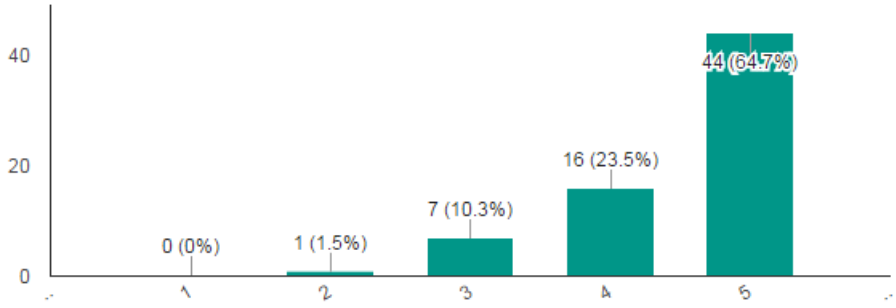


Figure 13: 24 X 7 availability

Mixed responses have been found regarding product satisfaction. 30.9% respondents remain neutral to make any comment 38.2% said its fare and few of them said they are dissatisfied about convenience store's products.

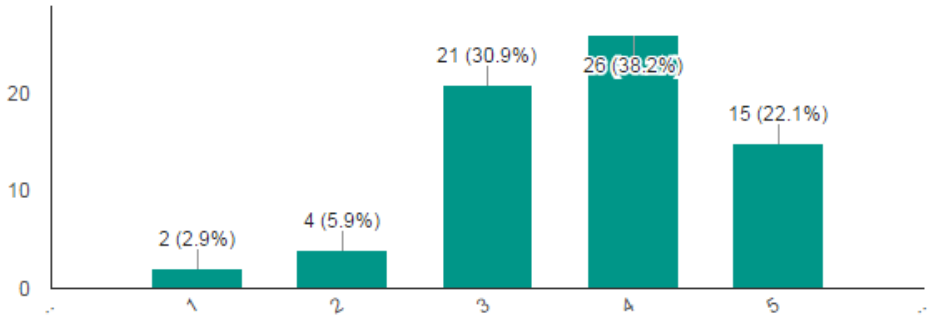


Figure 14: product reliability

In case of loyalty issue, majority of the respondents said they are satisfied about convenience store's loyalty. Among them 29.4% marked satisfied and 23.5% respondents said they are very satisfied of store's loyalty. A moderate number of

respondents remain neutral to make any comment. This can be happen that respondents didn't realize the loyalty issue from the employee side. Besides this there are moderate level of respondents mentioned that they are satisfied about store loyalty.

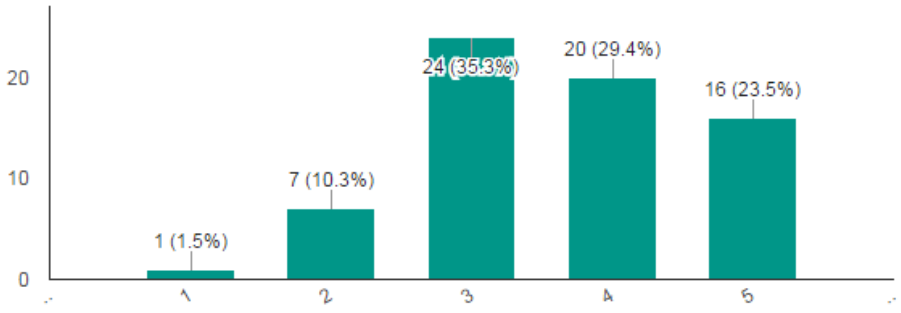


Figure 15: Store loyalty

A substantial number of respondents mentioned that they are very satisfied about convenience store because they can pay their utilities bill, can book flights, can use Fax, or use photocopier and can use ATM. 67.6% respondents replied that they are very satisfied for this.

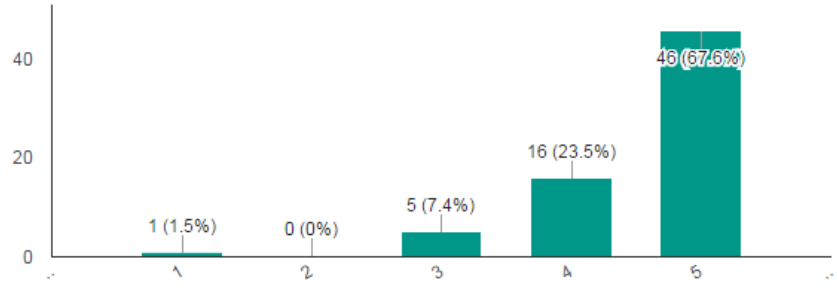


Figure 16: Utility bill payment

Significant and diverse results have been found when respondents were asked about the price satisfaction of products convenience stores sell. 30.3% respondent marked strongly dissatisfied and 27.3% respondents replied that they are dissatisfied about the product price of convenience store. A total number of 57.6% respondents felt that convenience store's product price is higher than other stores.

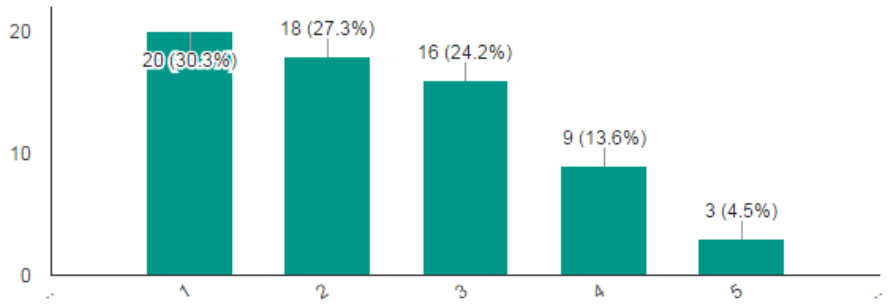


Figure 17: Price

Mixed responses have been found from this category. 14.9% respondents strongly agree, 23.9% agree that language is a problem to communicate with the staff or to read the levels of the product. A moderate number of respondents remain neutral and around 37% respondents believe that language was not a barrier for them to communicate with the store employees and read the product levels.

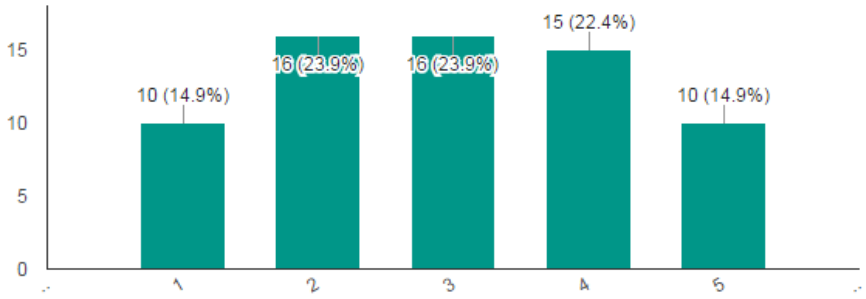


Figure 18: Communication

Majority of the respondents mentioned that they are satisfied with convenience store services. Around 30% respondents marked that they are very satisfied with the services and a small number of respondents remain neutral.

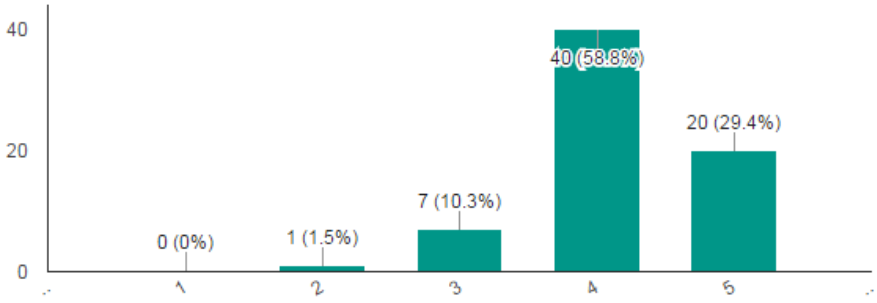


Figure 19: Overall satisfaction

4. Result and Analysis:

1st analysis:

The below chart is showing correlation matrix that present correlations among variables. Pearson Correlation measures the degree of the linear relationship between two variables (Mo & Wang, 2015). Pearson correlation ranges from -1.0 to +1.0. Pearson correlation is given by the letter *r* (Encyclopedia, 2016). If the *r* value is O or close to zero then we can say that there is no relationship or very small relationship. Notice that they are correlation of 1.0 in a diagonal line across the table. That is because each variable should correlate perfectly with itself.

Below Correlation Matrix shows relationship among 11 variables. From the below chart, I am looking for values higher than 0.5 and close to 1.0. But from the chart I cannot find satisfactory values for correlations. There are two values .58 and .56 shows a moderate level of correlation with overall satisfaction and employee responsiveness satisfaction; overall satisfaction and store loyalty satisfaction respectively.

The issue about determinant is that if the value is O then there must be computational problems with factor analysis and SPSS may not be able to do factor analysis. Here the determinant is .051, which is satisfactory to run factor analysis.

Correlation Matrix[a]

		Location_satisfaction	Store_decor_satisfaction	Waiting_time_Satisfaction	Responsiveness_satisfaction	Availability_24X7	Reliability_satisfaction	Loyalty_satisfaction	Bill_payment_satisfaction	Price_satisfaction	Communication_satisfaction	Overall_satisfaction
Correlation	Location_satisfaction	**1.000**	.312	.448	.186	.116	.097	.116	.234	-.105	.146	.331
	Store_decor_satisfaction	.312	**1.000**	.468	.360	-.012	.258	.421	.201	.132	.197	.336
	Waiting_time_Satisfaction	.448	.468	**1.000**	.516	.208	.064	.349	.244	-.025	.036	.388
	Responsiveness_satisfaction	.186	.360	.516	**1.000**	-.013	.184	.502	.283	.172	.216	.580
	Availability_24X7	.116	-.012	.208	-.013	**1.000**	.077	.148	.117	.084	-.188	.122
	Reliability_satisfaction	.097	.258	.064	.184	.077	**1.000**	.275	-.043	.281	.168	.243
	Loyalty_satisfaction	.116	.421	.349	.502	.148	.275	**1.000**	.449	.361	.158	.555
	Bill_payment_satisfaction	.234	.201	.244	.283	.117	-.043	.449	**1.000**	.149	.129	.385
	Price_satisfaction	-.105	.132	-.025	.172	.084	.281	.361	.149	**1.000**	.152	.170
	Communication_satisfaction	.146	.197	.036	.216	-.188	.168	.158	.129	.152	**1.000**	.366
	Overall_satisfaction	.331	.336	.388	.580	.122	.243	.555	.385	.170	.366	**1.000**
Sig. (1-tailed)	Location_satisfaction		.006	.000	.069	.179	.220	.178	.030	.203	.123	.004
	Store_decor_satisfaction	.006		.000	.002	.461	.019	.000	.054	.148	.058	.003
	Waiting_time_Satisfaction	.000	.000		.000	.048	.307	.002	.025	.421	.387	.001
	Responsiveness_satisfaction	.069	.002	.000		.459	.072	.000	.011	.085	.042	.000
	Availability_24X7	.179	.461	.048	.459		.271	.120	.177	.252	.067	.166
	Reliability_satisfaction	.220	.019	.307	.072	.271		.013	.366	.012	.091	.025
	Loyalty_satisfaction	.178	.000	.002	.000	.120	.013		.000	.002	.104	.000
	Bill_payment_satisfaction	.030	.054	.025	.011	.177	.366	.000		.119	.153	.001
	Price_satisfaction	.203	.148	.421	.085	.252	.012	.002	.119		.113	.088
	Communication_satisfaction	.123	.058	.387	.042	.067	.091	.104	.153	.113		.001
	Overall_satisfaction	.004	.003	.001	.000	.166	.025	.000	.001	.088	.001	

Determinant = .051

Table 1: 1st Analysis (Chart of Correlation Matrix)

KMO and Bartlett's Test:

Here the Kaiser-Meyer-Olkin measure of sampling adequacy is .734. The value of The KMO represents the how small the partial correlations are, based on the original correlation (SPSS Statistics support team, 2011). Kaiser-Meyer-Olkin measure of sampling adequacy is close to1.0indicates that the data are adequate to do factor analysis. KMO value less than 0.5 indicate that the factor analysis may not be useful. This is happen when most of the zero-order correlations are positive. In my findings, I have quite good KMO value near the expected KMO value and if I see the Correlation Matrix chart, it reflects many partial positive correlations.

This analysis has Bartlett's test of Sphericity, Chi-square value is approximate 176.610. Also it shows the significance value that indicates that the correlation matrix is an identity matrix (Sidanius, 2007). Bartlett's lest of Sphericity test the hypothesis that the variables of the dataset may not have any correlation and not suitable for structure detection (Center). A smaller value less than 0.05 indicates significant usefulness of dataset for factor analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.734
Bartlett's Test of Sphericity	Approx. Chi-Square	176.610
	df	55
	Sig.	.000

Table 2: 1st Analysis (KMO and Bartlett's Test)

Communalities are the proportion of each variable's variance that can be explained by the factors (Sidanius, 2007). The initial communalities shown here are for the correlation analysis. Extractions are the estimates of variance of each variable. Here in the extraction result, variable variances are quite good. Some small values such as Location satisfaction or Store decoration satisfaction may drop from the final analysis.

Communalities

	Initial	Extraction
Location satisfaction	1.000	.599
Store_decor_satisfaction	1.000	.543
Waiting_time_Satisfaction	1.000	.714
Responsiveness_satisfaction	1.000	.567
Availability_24X7	1.000	.714
Reliability satisfaction	1.000	.769
Loyalty satisfaction	1.000	.718
Bill_payment_satisfaction	1.000	.688
Price satisfaction	1.000	.663
Communication satisfaction	1.000	.609
Overall satisfaction	1.000	.649

Extraction Method: Principal Component Analysis.

Table 3: 1st Analysis (Communalities).

The Initial number of factors is same because I am analyzing 11 variables and initially it shows 11 variables but all 11 variables will not retain. In this case only 4 variables will be retained as I requested to identify 4 variables whose Initial Eigen values are 1.0 or above. Eigen values are the variance of the factors. To conduct the factor analysis on correlation matrix the variables have been standardized and that means each variable has a variance of 1 (Sidanius, 2007). Total variance will be same as the total number of variables such as total number of variance is 11 for this case.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.516	31.963	31.963	3.516	31.963	31.963	2.378	21.617	21.617
2	1.443	13.117	45.080	1.443	13.117	45.080	2.074	18.858	40.474
3	1.228	11.162	56.241	1.228	11.162	56.241	1.511	13.735	54.209
4	1.047	9.516	65.757	1.047	9.516	65.757	1.270	11.548	65.757
5	.866	7.874	73.631						
6	.725	6.593	80.224						
7	.608	5.523	85.747						
8	.552	5.014	90.761						
9	.410	3.725	94.486						
10	.327	2.974	97.460						
11	.279	2.540	100.000						

Extraction Method: Principal Component Analysis.

Table 4: 1st Analysis (Total Variance Explained).

In Extraction Sums of Squared Loadings, total column shows the Eigenvalues. The first factors contains to most variance as it consider as the highest eigenvalues. From the next factors account for as much of the left over variance as it can and so on. % of variance column shows how much percentage of variance each factor contains form total variance (Sidanius, 2007). Cumulative percentage column shows the cumulative percentage of variance of current and preceding factors. For example the fourth row shows a value of 65.757%, means that first four factors together represent 65.757% of total variance.

The values of the Rotation sums of the Squad Loadings column present the distribution of variance after varimax rotation. Varimax maximize the variance and the total variance is redistributed among the four extracted factors.

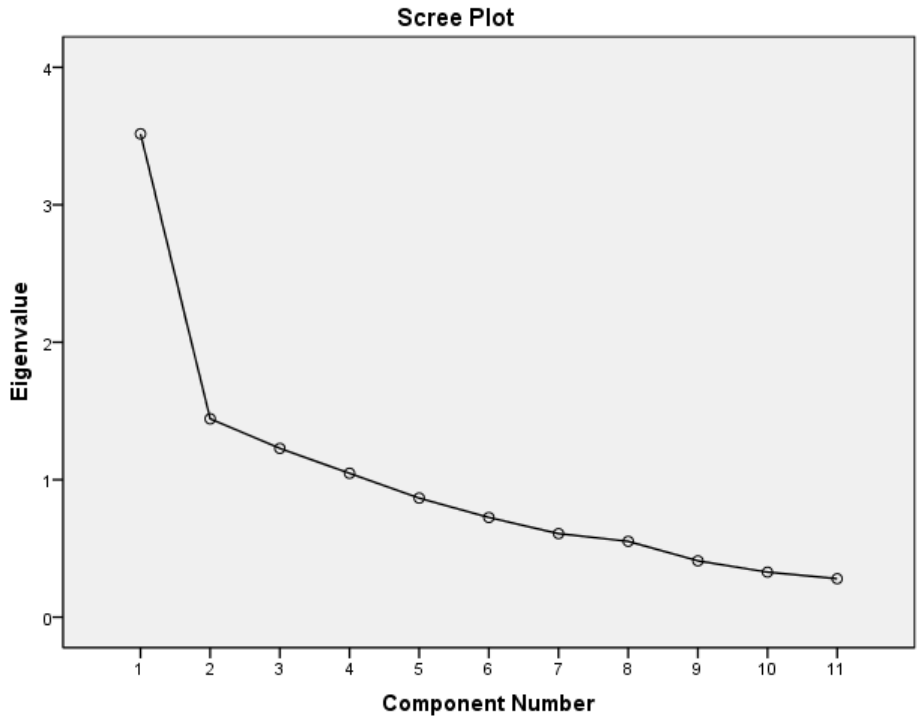


Table 5: 1st Analysis (Scree Plot).

System puts the initial eigenvalues against component in a graph then got the above scree plot. The scree plot shows eigenvalues against factor number. Above graph shows that four factors have been identified whose eigenvalues are more than 1.0. We can see that from the fifth factor, the line is almost flat. The reason behind the case is that each following factor contains smaller and smaller amounts of total variance. The inflection point is around component number 2 from where the eigenvalue jumped to 3.5.

Component Matrix[a]

	Component			
	1	2	3	4
Overall_satisfaction	.790	.043	-.079	-.134
Loyalty_satisfaction	.759	.223	.246	-.176
Responsiveness_satisfaction	.737	.008	-.107	-.111
Waiting_time_Satisfaction	.660	-.504	.023	.155
Store_decor_satisfaction	.646	-.068	-.169	.306
Price_satisfaction	.322	.664	.344	-.024
Location_satisfaction	.471	-.526	-.201	.244
Availability_24X7	.171	-.259	.769	.162
Communication_satisfaction	.372	.356	-.581	-.077
Reliability_satisfaction	.371	.459	.083	.643
Bill_payment_satisfaction	.538	-.105	.161	-.601

Table 6: 1st Analysis (Component Matrix).

The above component matrix shows that four components have been extracted. Component matrix presents how variables are loaded in the components. We can see that in component number 1, first 5 variables have loaded very high, in component number 2, variable number 6 has loaded very high, in component number 3, variable number 8 has loaded high and in component number 4, variable number 10 has loaded high.

Rotated Component Matrix[a]

	Component			
	1	2	3	4
Bill_payment_satisfaction	.787	.087	-.240	-.055
Loyalty_satisfaction	.756	.164	.340	-.053
Overall_satisfaction	.648	.402	.195	.175
Responsiveness_satisfaction	.583	.410	.163	.180
Location_satisfaction	.059	.769	-.068	-.004
Waiting_time_Satisfaction	.307	.768	-.002	-.172
Store_decor_satisfaction	.229	.597	.338	.142
Reliability_satisfaction	-.037	.175	.858	.035
Price_satisfaction	.437	-.335	.598	-.039
Availability_24X7	.158	.129	.145	-.807
Communication_satisfaction	.244	.115	.196	.706

Table 7: 1st Analysis (Rotated Component Matrix).

The rotated component matrix shows how variables are loaded in the component. Variables 1 and 2 loaded very well with component number 1. In component number 2, variables 5 and 6 loaded very well. In case of component number 3, variables 8 and 9 loaded well but in component number 4, variable number 10 loaded negatively and number 11 loaded very well. From the above chart we cannot see any strong loadings in variable number 5 (Location satisfaction). So I did the analysis again excluding variable number 5 and so on.

Component Transformation Matrix

Component	1	2	3	4
1	.729	.588	.340	.086
2	.164	-.637	.656	.369
3	.230	-.266	.198	-.915
4	-.624	.421	.643	-.140

Table 8: 1st Analysis (Component Transformation Matrix).

Component transformation matrix represents the correlation among the components. The correlation range is from -1.0 to +1.0. From the above chart component number 4 has moderate level negative correlation with component number 1, component number 3 has strong negative correlation with component number 4, component number 2 and 4 have moderate level of positive correlation with component number 3. Other correlations are not strong enough to consider.

For the sake of data reduction I have done the analysis 10 more times to identify the most influencing factors. I combine most important results from the 10 analysis in one table to understand the fact easily. As the "Rotated Component Matrix" needs to analyze after each variable reduction steps, I put the said table in every analysis. The combine analysis result is given below:

No of Analysis	Items analyzed	Items excluded	Determinant	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Significance.	Number of Items extracted	Cumulative variance of extracted components
1st Analysis	Location, Decoration, Waiting time, Responsiveness, availability, loyalty, Reliability, Bill payment, Price, communication, Overall satisfaction	None	0.051	0.734	0	4	65.757
2nd Analysis	Location, Waiting time, Responsiveness, availability, loyalty, Reliability, Bill payment, Price, communication, Overall satisfaction	Decoration	0.08	0.76	0	4	68.4
3rd Analysis	Location, Waiting time, Responsiveness, loyalty, Reliability, Bill payment, Price, communication, Overall satisfaction	Decoration, availability	0.095	0.725	0	3	62.266
4th Analysis	Location, Waiting time, Responsiveness, loyalty, Reliability, Bill payment, Price, communication	Decoration, availability, Overall satisfaction	0.202	0.645	0	3	62.709
5th Analysis	Location, Waiting time, Responsiveness, loyalty, Reliability, Bill payment, communication	Decoration, availability, Overall satisfaction, Price	0.257	0.593	0	2	53.04
6th Analysis	Location, Waiting time, Responsiveness, loyalty, Reliability, Bill payment	Decoration, availability, Overall satisfaction, Price, communication	0.287	0.582	0	2	59.188

7th Analysis	Location, Waiting time, Responsiveness, loyalty, Bill payment	Decoration, availability, Overall satisfaction, Price, communication, Reliability	0.334	0.616	0	2	66.643
8th Analysis	Waiting time, Responsiveness, loyalty, Bill payment	Decoration, availability, Overall satisfaction Price, communication, Reliability, Location	0.446	0.667	0	1	53.446
9th Analysis	Waiting time, Responsiveness, loyalty, Bill payment, Overall satisfaction	Decoration, availability, Price, communication, Reliability, Location	0.249	0.776	0	1	53.53
10th Analysis	Responsiveness, loyalty, Waiting time, Overall satisfaction	Decoration, availability, Price, communication, Reliability, Location, Bill payment	0.320	0.760	0	1	60.759

Table 9: 1st - 10th analysis (Combined result).

Table 9 shows that after 1st analysis, one of the variables have been reduced as a data reduction process.

2nd Analysis:

In 1st analysis, Table 7, Rotated component matrix shows that Store decoration variable didn't load very well with any of the components. So, I decided to exclude this variable and do the same factor analysis. In this case, determinant slightly increased but very reasonable. Significant is very good .000. Kaiser-Meyer-Olkin measure of sampling adequacy is also reasonable 0.734. 2nd analysis extracted 4 components and the total variance is 68% that is better than 1st analysis(refer to Table 9: 1st -10th analysis

(combined result). Below Rotated Component Matrix shows that, in component number 1, loyalty, bill payment and overall satisfaction, responsiveness loaded very well. In component 2, location and waiting time loaded very well, In component 3, reliability and price loaded moderately and in component 4, availability and communication loaded highly but availability loaded negatively so I choice to exclude availability and run the analysis again.

Rotated Component Matrix[a]

	Component			
	1	2	3	4
Loyalty_satisfaction	.804	.056	.267	-.062
Bill_payment_satisfaction	.761	.075	-.274	-.049
Overall_satisfaction	.652	.406	.245	.198
Responsiveness_satisfaction	.632	.359	.153	.191
Location_satisfaction	.078	.808	.040	.018
Waiting_time_Satisfaction	.381	.712	.006	-.168
Reliability_satisfaction	.025	.112	.887	.033
Price_satisfaction	.461	-.428	.520	-.056
Availability_24X7	.135	.183	.199	-.791
Communication_satisfaction	.220	.129	.257	.719

Table 10: 2nd Analysis (Rotated Component Matrix)

3rd Analysis:

3rd analysis excluded Decoration and availability and the results are: Determinant increased slightly 0.095, Sampling adequacy value remain very well 0.725, Significance is also .000, But component matrix identified three components and accumulated variance reduced to 62.266%(refer to Table 9: 1st -10th analysis (combined result). Rotated component Matrix shows that variables are loaded into components good except Overall satisfaction. So, the fourth analysis is done excluding overall satisfaction.

Rotated Component Matrix[a]

	Component		
	1	2	3
Loyalty_satisfaction	.823	-.081	.224
Bill_payment_satisfaction	.734	.078	-.186
Responsiveness_satisfaction	.672	.267	.249
Overall_satisfaction	.644	.314	.410
Location_satisfaction	.149	.776	.174
Waiting_time_Satisfaction	.499	.624	.005
Price_satisfaction	.425	-.568	.383
Reliability_satisfaction	.068	-.089	.774
Communication_satisfaction	.079	.156	.661

Table 11: 3rd Analysis (Rotated Component Matrix)

4th Analysis:

Determinant value increased, sampling adequacy decreased, and extracted component number remain same and quite similar value of cumulative variance (refer to Table 9: 1st -10th analysis (combined result). Rotated Component Matrix is given below. According to this table, except price all of the variables loaded very well. So in 5th analysis I choose to exclude price and run the same analysis.

Rotated Component Matrix[a]

	Component		
	1	2	3
Loyalty_satisfaction	.819	.027	.251
Bill_payment_satisfaction	.740	.145	-.186
Responsiveness_satisfaction	.627	.353	.250
Price_satisfaction	.486	-.475	.448
Location_satisfaction	.063	.809	.152
Waiting_time_Satisfaction	.434	.709	.023
Reliability_satisfaction	.053	-.015	.815
Communication_satisfaction	.059	.162	.606

Table 12: 4th Analysis (Rotated Component Matrix)

5th Analysis:

In 5th analysis, sampling adequacy is very low, 0.593(refer to Table 9: 1st -10th analysis (combined result)) and Rotated Component Matrix shows that communication has weakly loaded with components so in 6th analysis I choose to exclude this one.

Rotated Component Matrix[a]

	Component	
	1	2
Waiting_time_Satisfaction	.740	.195
Bill_payment_satisfaction	.704	.018
Location_satisfaction	.689	-.201
Reliability_satisfaction	-.137	.715
Responsiveness_satisfaction	.502	.611
Loyalty_satisfaction	.492	.608
Communication_satisfaction	-.032	.589

Table 13: 5th Analysis (Rotated Component Matrix)

6th Analysis:

6th analysis also shows result very close to 5th analysis. Sampling adequacy rate is very low near 0.5(refer to Table 9: 1st -10th analysis (combined result)). Two components are extracted in this analysis and except reliability, every items loaded very well with components.

Rotated Component Matrix[a]

	Component	
	1	2
Loyalty_satisfaction	.760	.290
Responsiveness_satisfaction	.725	.330
Reliability_satisfaction	.694	-.324
Location_satisfaction	-.088	.756
Bill_payment_satisfaction	.169	.691
Waiting_time_Satisfaction	.408	.645

Table 14: 6th Analysis (Rotated Component Matrix)

7th analysis:

Determinant still increased, sampling adequacy increased a bit too. Noticeably, cumulative variance became 66.643% (refer to Table 9: 1st -10th analysis (combined result)). Rotated Component matrix shows that Loyalty and responsiveness loaded strongly with component 1, Location and waiting time loaded with component 2 but location loaded negatively with component 1. So, for the better result, 8thanalysis will exclude location.

Rotated Component Matrix[a]

	Component	
	1	2
Loyalty_satisfaction	.844	.066
Responsiveness_satisfaction	.829	.111
Location_satisfaction	-.076	.940
Waiting_time_Satisfaction	.522	.569
Bill_payment_satisfaction	.426	.500

Table 15: 7th Analysis (Rotated Component Matrix)

8th Analysis:

Determinant is very high, Variance is also low, sampling adequacy is also low, and so, it cannot be the better choice (refer to Table 9: 1st -10th analysis (combined result)). I choose to include overall satisfaction to get expected value.

Component Matrix[a]

	Component
	1
Responsiveness_satisfaction	.792
Loyalty_satisfaction	.787
Waiting_time_Satisfaction	.719
Bill_payment_satisfaction	.612

Table 16: 8th Analysis (Rotated Component Matrix)

9th Analysis:

Significant improved has been observed in this analysis. Determinant became 0.249, sampling adequacy value is also very good 0.776, extracted one component and cumulative variance is 53.53% (refer to Table 9: 1st -10th analysis (combined result)).

Component Matrix[a]

	Component
	1
Overall_satisfaction	.807
Responsiveness_satisfaction	.791
Loyalty_satisfaction	.778
Waiting_time_Satisfaction	.669
Bill_payment_satisfaction	.587

Table 17: 9th Analysis (Rotated Component Matrix)

10th Analysis:

Component Matrix[a]

	Component
	1
Responsiveness_satisfaction	.837
Overall_satisfaction	.812
Loyalty_satisfaction	.762
Waiting_time_Satisfaction	.700

Table 18: 10th Analysis (Component Matrix)

Component Matrix shows that responsiveness loaded very well in component number 1. From Fig 26, determinant is .32, sampling adequacy is quite good .76, Significance still .000 and extracted component contains 60.76% of total variance(refer to Table 9: 1st -10th analysis (combined result)). All of the four variables loaded very well with the component and so I think, enough reduction has been done and I got the final result.

Correlation Matrix[a]

		Waiting_time_ Satisfaction	Responsiveness_ satisfaction	Loyalty_satisfaction	Overall_satisfactio n
Correlatio n	Waiting_time_Satisfaction	1.000	.510	.340	.388
	Responsiveness_satisfaction	.510	1.000	.493	.572
	Loyalty_satisfaction	.340	.493	1.000	.540
	Overall_satisfaction	.388	.572	.540	1.000
Sig. (1-tailed)	Waiting_time_Satisfaction		.000	.002	.001
	Responsiveness_satisfaction	.000		.000	.000
	Loyalty_satisfaction	.002	.000		.000
	Overall_satisfaction	.001	.000	.000	

a. Determinant = .320

Table 19: 10th analysis (Correlation Matrix)

One of the reasons to include Overall satisfaction is to measure correlation between variables and overall satisfaction. Correlation matrix shows that responsiveness and loyalty correlates with overall satisfaction.

5. Limitations and suggestions for further research:

Although this study founds interesting and meaningful findings, there are some limitations that should be discussed.

- This research consider only convenience store sector among retail industry. Further research can be done including overall retailing industry.
- This study focuses on secondary data source to identified CRM practices and attempted to collect as many relevant CRM activities as possible. As new CRM practices evolving over time, the factors this study used will need to improve or update.
- Time period for this research was very short. An extensive further research should be done to focus more CRM issues and including more sectors.

6. Conclusion

From the data analysis I found the following outcomes:

- Sampling adequacy0.76 indicates that the dataset are adequate to analysis. Significance value of this test is .000 which shows that the test is perfectly significant.
- Correlation matrix shows that Employee responsiveness and store loyalty have positive correlation with customer satisfaction.
- Later on, "Total variance Explained" chart identified one underlying factors those contain 60.76% of total variances.
- After analyzing 'Rotated Component Matrix', we can see that variables such as Loyalty satisfaction, and Responsiveness satisfaction loaded very well. Waiting time and bill payment facility also loaded considerable.
- So, the component number 1 carries most variables and has strong influence on customer satisfaction. From the above analysis, we can say that store loyalty and employee responsiveness have most influence on customer satisfaction.
- These findings suggest that, convenience stores as well as other retailing organizations can concentrate more on these services to attract their customers and other retail stores such as supermarkets and departmental stores can

implement these services to improve their CRM practices.

This study has some important managerial implications. Such as:

- First of all this study identifies different customer relationship management activities. Therefore superstores and departmental stores can use this report to identify key activities and implement it to be successful.
- This study found that there is considerable room for CRM issues to be improved. Managers should evaluate the employee as well as overall store performance effectively.
- From the literature we have seen that improved CRM has positive effect to improve profitability and sustainability in the competitive market place. So, managers can emphasize on loyalty issue to increase customer retention rate and increase word-of-mouth activity.

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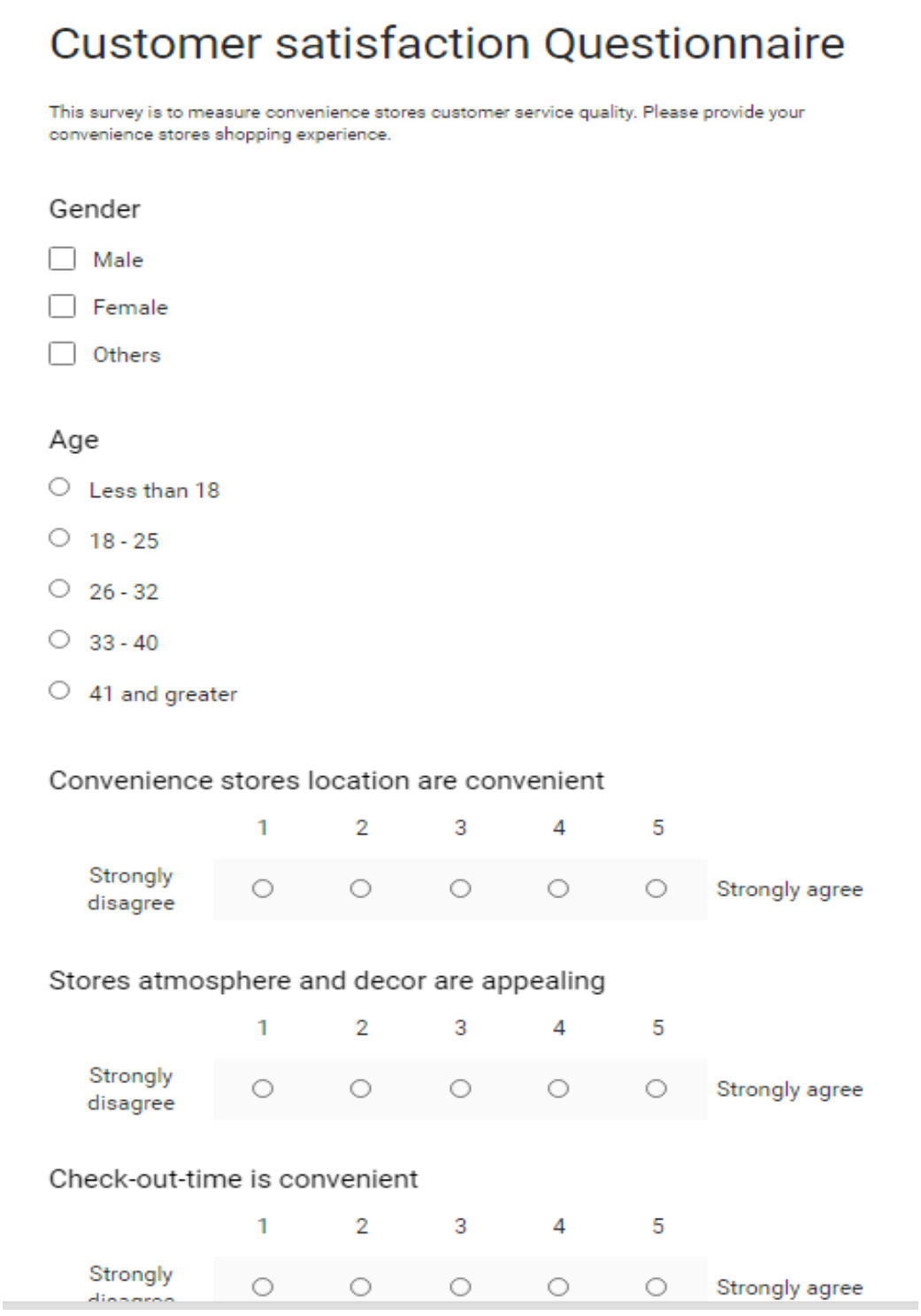
8. Appendix

1. Survey questionnaire:



Customer satisfaction Questionnaire

This survey is to measure convenience stores customer service quality. Please provide your convenience stores shopping experience.

Gender

- ☐ Male
- ☐ Female
- ☐ Others

Age

- ○ Less than 18
- ○ 18 - 25
- ○ 26 - 32
- ○ 33 - 40
- ○ 41 and greater

Convenience stores location are convenient

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Stores atmosphere and decor are appealing

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Check-out-time is convenient

	1	2	3	4	5	
Strongly	○	○	○	○	○	Strongly agree

Store staffs were responsive to my inquiry

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I prefer convenience store because of its 24 X 7 availability

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I can rely on convenience store's products

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I think, Convenience stores are loyal to their customers

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I prefer convenience store because I can pay my utility bills and other services

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I prefer convenience store because of price advantage

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Language was not a barrier to get services from convenience stores

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Overall, I am very satisfied with the convenience store services.

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

2. Survey Responses:

Gender	Age	Location satisfaction	Store decoration	Waiting time	Staff responsiveness	24 X 7 availability	Product reliability	Store loyalty	Bill payment	Price	Communication	Overall satisfaction
	33-40	4	4	4	4	5	4	5	5			4
Female	26 - 32	5	5	5	4	5	5	3	4	2	5	5
Male	26 - 32	4	5	4	4	5	4	4	5	3	3	4
Female	18 - 25	5	3	4	5	5	4	3	5	3	2	4
Male	18 - 25	5	3	3	3	5	5	2	1	1	1	3
Male	26 - 32	5	3	5	5	5	3	3	5	1	4	5
Female	18 - 25	4	4	3	5	3	5	3	5	2	2	4
Male	18 - 25	5	4	4	4	5	5	5	5	1	4	5
Male	18 - 25	5	5	5	4	5	3	2	4	1	2	4
Male	26 - 32	4	3	3	4	5	4	3	4	4	4	4
Female	26 - 32	5	4	5	5	5	3	5	5	3	2	5
Female	18 - 25	3	2	3	1	5	2	2	5	3	1	2
Male	18 - 25	5	5	5	5	4	4	5	5	2	4	5
Male	18 - 25	4	4	4	4	4	4	3	5	3	3	4
Male	33 - 40	3	4	3	4	4	3	3	3	4	2	3
Male	26 - 32	4	4	3	4	4	2	5	5	2	2	5
Male	26 - 32	4	4	3	3	5	3	3	5	2	3	4
Female	26 - 32	4	3	5	5	3	1	3	4	1	3	4
Female	18 - 25	4	3	2	3	5	4	4	5	2	2	4
Male	26 - 32	4	4	3	4	4	3	3	4	1	1	4
Female	26 - 32	5	4	4	2	4	4	3	5	3	2	4
Male	26 - 32	5	4	3	2	4	2	2	4	1	4	3
Female	26 - 32	4	4	4	4	3	4	3	4	2	3	4
Male	18 - 25	5	5	5	5	3	3	3	5	1	3	4
Female	26 - 32	4	4	4	5	5	4	3	5	3	3	4
Male	18 - 25	4	4	3	3	4	3	3	4	2	3	4

Male	26 - 32	4	4	4	3	5	2	4	5	1	2	3
Male	26 - 32	5	4	5	4	5	4	4	5	3	5	5
Male	Above 40	5	3	4	5	5	3	4	5	2	4	5
Female	33 - 40	5	5	3	5	3	5	5	5	5	5	5
Male	33 - 40	5	5	5	5	5	5	5	5	5	5	5
Female	26 - 32	3	3	3	5	5	3	3	5	1	5	4
Female	26 - 32	5	4	5	3	5	4	4	5	1	2	4
Female	18 - 25	4	3	2	3	3	4	3	4	2	4	4
Female	26 - 32	5	4	5	5	5	5	5	5	2	1	5
Male	33 - 40	4	4	4	4	2	4	4	4	2	5	3
Male	18 - 25	4	4	5	5	5	1	5	5	3	1	4
Male	33 - 40	5	4	5	4	5	3	3	5	1	2	4
Male	Above 40	5	5	5	4	5	3	4	5	1	4	5
Female	26 - 32	4	3	4	3	4	3	2	4	2	2	4
Female	18 - 25	4	3	4	4	5	5	5	4	4	4	4
Female	18 - 25	5	4	4	4	5	3	3	5	2	2	3
Male	33 - 40	5	4	4	5	5	4	4	5	3	4	5
Male	Below 18	5	5	5	5	4	4	4	5	4	5	5
Male	26 - 32	5	4	4	4	5	4	4	5	4	1	4
Female	18 - 25	4	5	4	4	5	5	5	5	2	5	4
Male	33 - 40	4	4	5	5	5	3	4	4	3	3	5
Female	33 - 40	5	5	5	5	5	3	4	5	2	3	4
Male	33 - 40	4	4	4	4	5	4	4	5	4	4	4
Male	33 - 40	3	3	4	4	4	3	2	4	3	4	4
Male	26 - 32	5	4	5	4	4	4	4	5	4	3	4
Male	18 - 25	4	5	5	5	3	4	5	5	2	3	5
Male	26 - 32	4	3	4	4	5	3	3	4	4	1	4
Male	18 - 25	1	4	3	4	5	5	4	4	3	2	4
Male	33 - 40	3	4	5	4	5	5	4	3	2	1	4
Male	Above 40	5	5	5	5	5	3	5	5	1	3	5
Female	Below 18	4	2	3	4	4	4	3	5	1	2	4

Female	26 - 32	5	5	5	5	5	5	5	5	4	3	4
Female	Below 18	5	3	5	5	4	4	3	5	1	4	4
Female	18 - 25	5	5	5	5	5	4	5	5	3	2	4
Male	26 - 32	5	5	5	4	5	5	2	5	1	1	4
Female	18 - 25	5	4	3	3	4	3	1	3	1	3	3
Male	Above 40	1	3	4	5	5	5	4	3		5	4
Male	26 - 32	5	4	5	4	5	4	3	3	1	4	4
Female	Above 40	5	3	5	4	5	4	4	5	1	1	4
Female	18 - 25	5	3	3	3	5	3	3	5	3	4	5
Female	18 - 25	5	3	3		4	4	4	5	3	5	5
Female	18 - 25	5	5	5	5	5	5	5	5	5	3	5